

CLAIMS

What is claimed is:

1. A computing device comprising:

a housing adapted to receive at least one processor, said housing having a height;

a fan mounted within said housing, said fan having a diameter greater than said height dimension of said housing; and

a support structure for mounting said fan within said housing and for limiting electromagnetic interference caused by said at least one processor.
2. A computing device as recited in claim 1, wherein the fan has an axis of rotation substantially parallel to the height of the housing.
3. A computing device as recited in claim 1, wherein said housing is adapted to receive at least one of a power supply assembly, a hard drive assembly, and a mother board assembly.
4. A computing device as recited in claim 1, wherein said housing comprises a cover and a carriage, both said cover and said carriage comprises a plurality of vents.
5. A computing device as recited in claim 1, wherein said fan is a fan selected from the group consisting of a ball bearing fan, a sleeve bearing fan, and a oil bearing fan.

6. A computing device as recited in claim 1, wherein said fan exhibits a low acoustic signature.

7. A computing device as recited in claim 1, wherein said fan is a variable speed fan.

8. A computing device as recited in claim 1, wherein said support structure comprises a plurality of holes therethrough.

9. A computing device as recited in claim 8, wherein each of said plurality of holes is configured to suppress electromagnetic energy generated by a processor.

10. A computing device as recited in claim 8, wherein each of said plurality of holes is configured to allow air to flow therethrough.

11. A computing device as recited in claim 8, wherein said support structure further comprises at least one dampening member disposed between said fan and said housing, said at least one dampening member acoustically dampening said fan from said housing.

12. A computing device as recited in claim 1, wherein said housing comprises a baffle, said baffle being configured to direct air flowing from said fan.

13. A computing device as recited in claim 12, wherein said baffle comprises at least one aperture for allowing air to flow from said fan.

14. A computing device as recited in claim 1, wherein said housing comprises a plurality of vents, at least one of said plurality of vents being disposed in at least one of a back portion, a front portion, a side portion, and a top portion of said housing.

WORKMAN, NYDEGGER & SEELEY
A PROFESSIONAL CORPORATION
ATTORNEYS AT LAW
1000 EAGLE GATE TOWER
60 EAST SOUTH TEMPLE
SALT LAKE CITY, UTAH 84111

15. A computing device comprising:

a housing having a height;

a processor positioned in the housing;

a smart card;

a fan mounted within said housing, said fan having a diameter greater than said height dimension of said housing, said fan being mounted within said housing such that the fan draws air from outside the housing over the smart card and then over the processor; and

a support structure for mounting said fan within said housing and for suppressing electromagnetic interference caused by said at least one processor.

16. A computing device as recited in claim 15, wherein the housing comprises a cover and a carriage.

17. A computing device as recited in claim 15, wherein the fan has an axis of rotation substantially parallel to the height of the housing.

18. A computing device as recited in claim 15, wherein the means for drawing comprises a fan and the fan is selected based upon criteria selected from the group consisting of (i) the flow rate of air moved by the fan, (ii) the static pressure associated with the fan, (iii) the acoustic noise generated by the fan, and (iv) the physical dimensions of the fan.

19. A computing device as recited in claim 15, wherein support structure comprises a plurality of apertures therethrough.

20. A computing device as recited in claim 19, wherein said plurality of apertures is adapted to suppress electromagnetic energy generated by the at least one processor.

21. A computing device as recited in claim 20, wherein at least one the plurality of apertures is configured to direct air drawn by the means for drawing to at least one of a motherboard assembly, a power assembly, and a hard disk assembly retained within the means for retaining.

22. A computing device as recited in claim 15, further comprising a baffle configured to direct the air drawn by the means for drawing.

23. A computing device as recited in claim 22, wherein the baffle has an L-shaped configuration.

24. A computing device as recited in claim 22, wherein the baffle has a T-shaped configuration.

25. A computing device as recited in claim 22, wherein the baffle comprises at least one aperture adapted to allow air to flow through the baffle.

26. A computing device comprising:
- a housing comprising at least one vent and having a height;
 - at least one processor mounted within the housing;
 - a support structure coupled to the housing and adapted to suppress emission of electromagnetic energy generated by the at least one processor; and
 - a fan mounted to the support structure and being adapted to draw air through the at least one vent, the fan having:
 - a diameter greater than the height of the housing; and
 - an axis of rotation substantially parallel to the height of the housing.

27. A computing device as recited in claim 26, wherein support structure comprises a plurality of apertures adapted to allow air to flow therethrough.

28. A computing device as recited in claim 26, wherein the fan is selected based upon at least one criteria selected from the group of criteria consisting of (i) the flow rate of air moved by the fan, (ii) the static pressure associated with the fan, (iii) the acoustic noise generated by the fan, and (iv) the physical dimensions of the fan.

29. A computing device comprising:
- a housing adapted to receive at least one processor, said housing having a height; and
- a fan mounted within said housing, said fan having a diameter greater than said height dimensions of said housing.
30. A computing device as recited in claim 29, further comprising a support structure for mounting said fan within said housing.
31. A computing device as recited in claim 30, wherein said support structure is configured to limit the electromagnetic interference caused by said at least one processor.
32. A computing device as recited in claim 29, wherein said height dimension is the smallest dimension of the housing.
33. A computing device as recited in claim 29, wherein said housing is adapted to receive at least one of a power supply assembly, a hard drive assembly, a motherboard assembly, a smart card, and a baffle.
34. A computing device as recited in claim 33, wherein said fan is adapted to draw air toward the fan, the air passing over at least one of said power supply assembly, said hard drive assembly, said motherboard assembly, a smart card, and said baffle.

35. A computing device as recited in claim 33, wherein said fan is adapted to force air from the fan, the air passing over at least one of said power supply assembly, said hard drive assembly, said motherboard assembly, a smart card, and said baffle.

36. A computing device as recited in claim 29, wherein said fan is configured to generate acoustic noise of between about 28 dB to about 35 dB.

37. A computing device as recited in claim 29, wherein said fan is configured to generate acoustic noise of between about 25 dB and about 30 dB.